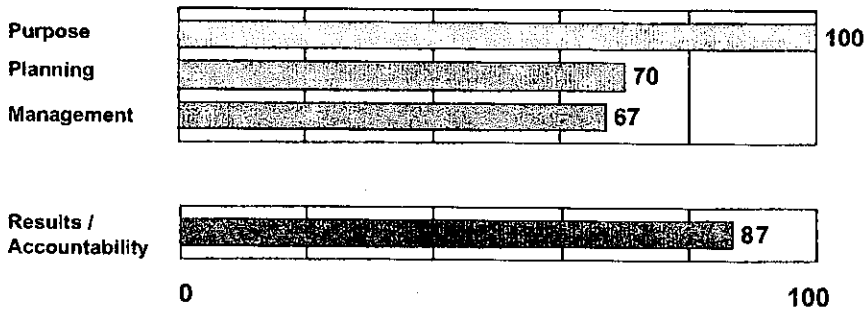
Program: *High Energy Physics*

Agency: *Department of Energy*
Bureau: *Office of Science*



Key Performance Measures	*Year*	*Target*	*Actual*
Long-term Measure: Progress (excellent, adequate, poor) in measuring the properties and interactions of the heaviest known particle (the top quark) in order to understand its particular role in the so-called "Standard Model" of particle physics. An independent expert panel will conduct a review and rate progress (excellent, adequate, poor) on a triennial basis.	2006	Excellent	
	2009	Excellent	
	2012	Excellent	
	2015	Excellent	
Annual Measure: Total integrated amount of data (within 20%; measured in inverse picobarnes) delivered to the CDF and D-Zero detectors at the Tevatron. (Targets are set in part by the funding requested/appropriated during that fiscal year. The ambitiousness of the target error bar of 20% is currently under review by OMB.)	2002	80	83
	2003	225	240
	2004	240	
	2005	390	
Annual Measure: Total integrated amount of data (within 20%; measured in inverse femtobarnes) delivered to the BABAR detector at the SLAC B-factory. (Targets are set in part by the funding requested/appropriated during that fiscal year. The ambitiousness of the target error bar of 20% is currently under review by OMB.)	2002	35	42
	2003	45	40
	2004	45	
	2005	50	

Link to PART details on OMB website.

Rating: *Moderately Effective*

Program Type: *Research and Development, Competitive Grant, Capital Assets and Service Acquisition*

Program Summary:

The Office of Science's High Energy Physics (HEP) program supports large national and international particle accelerator experiments and research in particle physics and related fields, including particle astrophysics and cosmology.

The assessment found that the HEP program has developed a limited number of adequate performance measures, as recommended during the 2004 PART process. Additional findings include:

- There is cautious optimism that the program's largest facility (the Tevatron at Fermilab) may finally be emerging from its recent period of performing below expectations.
- The program recently instituted a Committee of Visitors process, but the program's merit review processes have yet to be validated—for impact on quality, relevance, and performance of the research portfolio—since the assessment(s) have not been completed.
- The program's advisory committee delineated priorities amongst several new projects, but has yet to set priorities across the breadth of the program.

In response to these findings:

1. The 2005 Budget provides funding to operate the program's two national user facilities at 93 percent of maximum capacity (the same as in 2004), and for the upgrades necessary to improve future performance.
2. The Department will work to develop a resource-loaded project plan covering the remainder of the Tevatron Run II effort, and will submit that plan to OMB by June, 2004.
3. The Department will develop an appropriate action plan in response to the findings and recommendations of the Committee of Visitors within 30 days of receipt of the report.
4. The Department will work with its advisory committee to develop research milestones [by September, 2004] against which future outside panels may judge interim progress toward achieving the long-term goals of the program.

Program Funding Level (in millions of dollars)

2003 Actual	2004 Estimate	2005 Estimate
718	734	737